



NASA Sounder Science Team Meeting

October 1-5, 2018 Greenbelt Md

Monday, October 1, 2018

LIGHT MORNING REFRESHMENTS 8:00-8:30

Name	Presentation	Affiliation	Time
Session 1: Introduction (Chair: Joao Teixeira)			
Joao Teixeira	NASA Sounder Science and the PBL	JPL	8:30 AM
Chris Barnet	Overview of S-NPP Sounding discipline Team Activities	STC	8:50 AM
Claire Parkinson	Aqua Mission Update	GSFC	9:10 AM
Tom Pagano	AIRS Project Status	JPL	9:30 AM
Ruth Monarrez	Sounder SIPS Status and Plans	JPL	9:50 AM
Gail Skofronick-Jackson	Introduction	NASA HQ	10:10 AM
Jack Kaye	NASA Headquarters Perspective	NASA HQ	10:20 AM
AM Break			10:30 AM
Session 2: Current/near-term spaceborne PBL capabilities (Chair: Joao Teixeira)			
Gregory Elsaesser	Multi-Sensor Analyses of the Evolution of Convection and the Thermodynamic Environment on Sub-Daily Timescales	Columbia Univ NASA GISS	10:50 AM
Yuekui Yang	Antarctic Boundary Layer Structure and its Impact on Outgoing Longwave Radiation	GSFC	11:10 AM
Chi Ao	Recent Progress on the Vertical Profiling of the Planetary Boundary Layer from GNSS Radio Occultations	JPL	11:30 AM
Feng Ding	PBL Height from AIRS and MERRA-2 Products at GES DISC and Preliminary Intercomparison Result	NASA/GSFC/GES DISC	11:50 AM
Thomas Hearty	Intercomparison of Surface Temperatures from AIRS and MERRA-2 with Weather Stations in Greenland	GSFC/SGT	12:10 PM
Lunch			12:30 PM

Monday, October 1, 2018, Continued

James L. Carr	Studying Atmospheric Dynamics at the Top of the PBL with LEO-GEO Stereo Imaging	Carr Astronautic Corp	2:00 PM
Zhien Wang	The Potentials and Limitations of Using Space-Based Elastic Lidar Measurements for PBL Height Determinations	Univ Colorado	2:20 PM
Session 3: Ground and airborne measurements of the PBL (Chair: Joe Santanello)			
Belay Demoz	Recommendations for space-based PBL observation and modeling (based on lessons learned from more than a decade of working in the field)	UMBC	2:40 PM
Jennifer Comstock	ARM Observations and Science Products for Boundary Layer Studies	ARM-PNNL	3:00 PM
Larry Berg	Measures of Boundary-Layer Properties Using Surface-Based Doppler Lidar	PNNL	3:20 PM
PM Break			3:40 PM
Dave Turner	Accuracy and Information Content on Thermodynamic Profiling from Active and Passive Ground-based Sensors	NOAA ESRL / GSD	4:00 PM
Dan Li	Characterizing Diurnal Variations of the PBL with Aircraft Meteorological Data Reports	BU	4:20 PM
Sun Wong	Convection Initiation and Moist Thermodynamic in the Planetary Boundary Layer: A Sounding Study of Tropical Storm Cindy by HAMS	JPL	4:40 PM
Steve Guimond	Coherent Turbulence in the Boundary Layer of Intense Hurricanes	UMBC, NASA/GSFC	5:00 PM
Session 4: Future/long-term PBL instrument and mission concepts (Chair: Matt Lebsock)			
Dave Emmitt	Airborne Doppler Wind Lidar Investigation of the PBL as Part of Planning for a Space-Based DWL	Simpson Weather Associates	5:20 PM
Kevin Maschhoff	MISTiC Winds	BAE Systems	5:40 PM
Adjourn			6:00 PM



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Tuesday, October 2, 2018

LIGHT MORNING REFRESHMENTS 8:00-8:30			
Name	Presentation	Affiliation	Time
Session 4: Future/long-term PBL instrument and mission concepts, Continued (Chair: Matt Lebsock)			
Bjorn Lambrigsten	Using Microwave Sounders to Probe the PBL	JPL	8:30 AM
Michael Kelly	A New Approach to Passive Wind Estimation Using Stereo Methods	JHU/APL	8:50 AM
Matthew Lebsock	Status of the Vapor In-cloud Profiling Radar	JPL	9:10 AM
Eric J. Fetzer	Infrared Sounding of the Boundary Layer: Potential Benefits of High Spatial Resolution	JPL	9:30 AM
Chris Wilson	Sensitivity of Infrared Radiances to Changes in Planetary Boundary Layer Water Vapor	JPL	9:50 AM
Amin Nehrir	Application of Water Vapor Lidar for Improved Understanding of Boundary Layer Processes	NASA LaRC	10:10 AM
AM Break			10:30 AM
Hui Su	Assessing Uncertainties of 3D Atmospheric Motion Vectors (AMVs) retrievals from water vapor feature tracking	JPL	10:50 AM
Dave Whiteman	Simulations of spaceborne lidar measurements of thermodynamic profiles within the planetary boundary layer	Howard Univ.	11:10 AM
Will McCarty and Nathan Arnold	GMAO Modeling and OSSE Capabilities in Support of PBL Mission Science	NASA-GSFC	11:30 AM
Adam Milstein	AIRS NN performance in the PBL – current status and future work	MIT	11:50 AM
	PBL Discussion 1		12:10 PM

Lunch			12:30 PM
	PBL Discussion 2		2:00 PM
	PBL Discussion 2		2:20 PM
Session 5: Weather and Climate (Chair: Eric Fetzer)			
Bryan Baum	Towards Continuity in IR Absorption Radiances from MODIS and VIIRS Through Use of CrIS	STC	2:40 PM
Larrabee Strow	A Long-Term Homogeneous Hyperspectral Radiance Time Series: AIRS2CrIS	UMBC	3:00 PM
Larrabee Strow	Level 3 AIRS/CrIS/IASI Anomalies and Trends Derived Directly from Radiance Trends	UMBC	3:20 PM
PM Break			3:40 PM
S. DeSouza-Machado	15 Years of Longwave Flux Trends: Roles of CO ₂ , Temperature, and H ₂ O	UMBC	4:00 PM
Brian Kahn	16 Years of Clouds Observed by AIRS: What Have We Learned?	JPL	4:20 PM
Qing Yue	Robust signals of high and low cloud feedbacks from AIRS, MODIS, and CERES observations.	JPL	4:40 PM
Ryan Kramer	Evaluating Radiative Feedbacks with Observational-Based Radiative Kernels	RSMAS / Univ of Miami	5:00 PM
Stephen Leroy	Stratospheric Temperature Trends and Anomalies from AIRS and GPS RO	AER	5:20 PM
Lidia Cucurull	Quantitative assessment of Impact of Current and New Observing Technologies	NOAA QOSAP, AOML	5:40 PM
Adjourn			6:00 PM



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Wednesday, October 3, 2018

LIGHT MORNING REFRESHMENTS 8:00-8:30

Name	Presentation	Affiliation	Time
Session 5: Weather and Climate - Continued (Chair: Eric Fetzer)			
Ralph Petersen	On the Impact and Benefits of AMDAR Water Vapor Observations to Operational Forecasting	UW, SSEC	8:30 AM
Tse-Chun Chen	Efficient Data Selection Method for NWP Using Ensemble Forecast Sensitivity to Observations	UMD	8:50 AM
Oreste Reale	Impact of Assimilating Cloud-Cleared and adaptively thinned infrared hyperspectral data on tropical cyclones in a global data assimilation and forecast framework	NASA/GSFC-USRA/GESTAR	9:10 AM
Erica McGrath-Spangler	Impact of Assimilating AIRS Cloud-Cleared Radiances on Atmospheric Dynamics at High Latitudes	NASA/GSFC-USRA/GESTAR	9:30 AM
Manisha Ganeshan	Impact of Assimilating AIRS Cloud-Cleared Radiances on Antarctic polar Lows	NASA/GSFC-USRA/GESTAR	9:50 AM
Isaac Moradi	Assimilation of Microwave Cloudy Radiances in the Rainbands of Hurricanes Using a Novel Bayesian Monte Carlo Technique into NASA GEOS-5	UMD / GMAO - NASA	10:10 AM
AM Break			10:30 AM
Xianglei Huang	Using AIRS L1-L3 products in physical climate studies: reviews and outlooks	Univ of MI	10:50 AM
Hartmut Aumann	Radiometric stability in 16 years of AIRS hyperspectral infrared data	JPL	11:10 AM
Session 6: Composition (Chair: Vivienne Payne)			
Vivienne Payne	Evaluation of sounder composition products	JPL	11:30 AM
Nadia Smith	The CLIMCAPS ozone retrieval product: first results and design considerations for climate applications	STC	11:50 AM
Leonid Yurganov	Lower and upper troposphere CH ₄ and CO concentrations retrieved from IASI data	UMBC	12:10 PM

Wednesday, October 3, 2018, Continued

Lunch			12:30 PM
Helen Worden	18 years of MOPITT data: Selected Results, Validation and Extending the Record	NCAR	2:00 PM
Robert Herman	Tropospheric and Boundary-Layer Water Vapor Isotopes During ORACLES: Validation of MUSES Retrievals of HDO	JPL	2:20 PM
Karen Cady-Pereira	Ammonia Measurements from the SNPP CrIS Instrument: Validation and Applications	AER	2:40 PM
Kelley Wells	Global Measurements of Isoprene from CrIS	UMN	3:00 PM
Vivienne Payne	Retrievals of peroxyacetyl nitrate from the Cross-track Infrared Sounder	JPL	3:20 PM
PM Break			3:40 PM
Session 7: Applications (Chair: Sharon Ray)			
Sharon Ray	AIRS Applications & User Services: A Summary of Efforts and Plans for FY19	JPL	4:00 PM
Feng Ding	Sounder Product and Services Updates at NASA GES DISC	NASA/GSFC/GES DISC	4:20 PM
Heidar Thrastarson	Applications of AIRS Data in Modeling and Prediction of Seasonal Influenza	JPL	4:40 PM
Alireza Farahmand	Using AIRS Observations for Monitoring Agro-Meteorological Droughts	JPL	5:00 PM
Alireza Farahmand	Using AIRS Observations for Predicting Fire Danger across the Contiguous United States	JPL	5:20 PM
Nadia Smith	NOAA Proving Ground efforts in developing weather applications using S-NPP/NOAA-20 sounding products	STC	5:40 PM
Adjourn			6:00 PM



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Thursday, October 4, 2018

LIGHT MORNING REFRESHMENTS 8:00-8:30

Name	Presentation	Affiliation	Time
Session 8: Retrievals (Chair: Chris Barnet)			
S. DeSouza-Machado	Progress on the AIRS RTA	UMBC	8:30 AM
Amy Braverman	AIRS Data Fusion Products: Status and Future Plans	JPL	8:50 AM
Jon Hobbs	A Simulation-Based Perspective on the Joint Probability Distribution of Atmospheric States and AIRS Retrievals	JPL	9:10 AM
Christopher Grassotti	NOAA-20 and SNPP ATMS Retrievals and Applications from the Microwave Integrated Retrieval System (MiRS)	CICS / NOAA	9:30 AM
Mathias Schreier	The RAMSES Dynasty: Branches and Heritage of Our Microwave-Only Retrieval Family	JPL	9:50 AM
Letitia Soulliard	HEAP (Hyper-spectral Enterprise Algorithm Package): Getting NUCAPS CrIS and IASI products on the same page	NOAA	10:10 AM
AM Break			10:30 AM
Callyn Bloch	Near real time CAPE combining hyper spectral IR satellite soundings and surface meteorological stations	NOAA	10:50 AM
John Blaisdell	Preliminary Results for Retrievals Using GFS Forecast as First Guess	GSFC	11:10 AM
Chris Barnet	Status and Results from CLIMCAPS-SNPP and CLIMCAPS-Aqua	STC	11:30 AM
Eric J. Fetzer	A Common Representation of Vertical Information Content in Retrievals from Different Sounding Instruments	JPL	11:50 AM
Evan Fishbein	Errors arising from estimating level composition products from layer-mean products	JPL	12:10 PM
Lunch			12:30 PM

Thursday, October 4, 2018, Continued

S. DeSouza-Machado	Applications of Single Footprint Retrievals: Humidity Above DCCs and Trace Gases	UMBC	2:00 PM
Bill Irion	Progress on Single Footprint Retrievals	JPL	2:20 PM
Xu Liu	High-spatial Resolution Sounding Products from AIRS and CrIS	NASA LaRC	2:40 PM
Eric Maddy	Using AI to Exploit the Capabilities of Satellite MW and IR sounders	NOAA	3:00 PM
David Santek	The Derivation of 3D winds from Sounders: Status and Outlook	UW, SSEC	3:20 PM
PM Break			3:40 PM
William L. Smith	High-Resolution Soundings from Combined Polar Hyper-Spectral and Geostationary Multi-spectral Satellite Infrared Radiance Data	Hampton Univ, Univ Wisc	4:00 PM
Antonia Gambacorta	Status of the NOAA Unique Combined Atmospheric Processing System (NUCAPS). Latest algorithm developments and first-glance results from NOAA20	NOAA	4:20 PM
Session 9: Validation (Chair: Bjorn Lambrigtsen)			
Qing Yue	Testing and Verification of AIRS 'V7' Developments	JPL	4:40 PM
Nicholas Nalli	Status of SNPP and NOAA-20 NUCAPS Validation	NOAA	5:00 PM
Baijun Tian	AIRS Version 7 Level 3 Product	JPL	5:20 PM
Tony Reale	Long Term Global Assessments Comparing NOAA, NASA and EUMETSAT Operational Soundings	NOAA	5:40 PM
Adjourn			6:00 PM



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Friday, October 5, 2018

LIGHT MORNING REFRESHMENTS 7:30 - 8:00

Name	Presentation	Affiliation	Time
Session 10: Calibration (Chair: Dave Tobin)			
Steve Broberg	AIRS Calibration Status	JPL	8:00 AM
Tom Pagano	Improvements to the AIRS Level 1B Radiometric Calibration	JPL	8:20 AM
Evan Manning	AIRS and CrIS comparisons with gridded radiances	JPL	8:40 AM
Hank Revercomb	Hyperspectral IR Radiances (HIS, AERI, AIRS, IASI, CrIS, HIRAS, GIIRS, ARI)	UW, SSEC	9:00 AM
Dave Johnson	JPSS CrIS Sensors and Pre-Flight Testing	LaRC	9:20 AM
Joe Taylor	CrIS L1B Project, Part 1	UW, SSEC	9:40 AM
AM Break			10:00 AM
Graeme Martin	CrIS L1B Project, Part 2	UW, SSEC	10:20 AM
C. Hepplewhite	Can We Improve the AIRS ILS Functions Using CrIS?	UMBC	10:40 AM
C. Hepplewhite	AIRS/CrIS Radiance Inter-Calibration and Tests of Trends Using Time Series that Combine Both Sensors	UMBC	11:00 AM
Dave Tobin	NOAA20 CrIS Nonlinearity and Radiometric Calibration	UW, SSEC	11:20 AM
Joe Taylor	CrIS Polarization and Radiometric Uncertainty	UW, SSEC	11:40 AM
Bob Knuteson	CrIS/IASI/AIRS Intercalibration Results	UW, SSEC	12:00 PM
Adjourn			12:20 PM